PHYSICAL RESEARCH DI

Materials Science - Response Desc

High Vacuum Pump Sta

Vacuum Guage Control

RF Generator

Light Microscope

Glass Vacuum System

Mechanical Propertie

Telsec "Betaprobe" H analyzer

Catalyst surface stu

1708

## CIGARETTE MATERIALS SCIENCE

Personnel Training: Organic chemistry, inorganic chemistry, reaction mechanisms, polymer chemistry, surface chemistry and physics, heterogeneous catalysis.

Objective: Search out new materials for filter systems and new treatments of smoking materials to reduce undesirable elements in smoke, to add flavor and aroma to smoke, and to reduce the cost of cigarette production.

Program:

(Goal 1) 1. Permanganate/alumina (Stoichiometric) $\longrightarrow$ $NO_x$, HCN, aldehyde removal

(Goal 3) 2. Study of the active sites in tobacco responsible for the sorption and retention of menthol.

(Goal 1) 3. Chlorite/alumina (Stoichiometric) $\longrightarrow$ $NO_x$ removal.

(Goal 2 & 5) 4. Chemical treatments of Ecusta paper filters for flavor improvement.

(Goal 3 & 5) 5. Systems for controlled release of menthol and other flavors.

a. grafting to cellulose
b. treatment of cellulose with cryogenic $NH_3$

(Goal 2 & 4) 6. Carbon fiber filler in rod $\longrightarrow$ reduced delivery and cost reduction.

(Goal 6) 7. Compounds added to tobacco filler $\longrightarrow$ CO reduction.

(Goal 6 & 4) 8. Chemical modification of stems, cigarette wrap paper, and naturally occurring carbohydrates for improved flavor.

(Goal 1) 9. New filter materials for the selective removal of CO, $NO_x$ and aldehydes.

Project Leader: Dr. N. B. Rainer, Senior Scientist
Dr. C. B. Hoelzel, Research Scientist
Dr. T. E. Majewski, Research Scientist
Mr. D. A. Full, Assistant Scientist
Mr. P. A. Wilson, Specialist
One Research Professional to be hired in 1973.

Goals 1.) Selective filtration; 2.) 10 mg. Marlboro; 3.) Menthol cigarette; 4.) Processing cost reduction; 5.) New products; 6.) Selective delivery.

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